ture or movements of living creatures conveniently. It should be of real assistance in the study of numerous small forms of animal life under natural conditions.

MESSRS. CHARLES GRIFFIN AND CO., LTD., have published the twenty-fourth annual issue of the "Year-book of the Scientific and Learned Societies of Great Britain and Ireland." The work is, as usual, compiled from official sources, and according to the title-page provides a record of the work done in science, literature, and art during the session 1906–7 by numerous societies and Government institutions. It is surprising to find, however, that in connection with the British Association, the only information in the book is confined to the proceedings of the York meeting in 1906, and no mention is made of the Leicester meeting in August last. Under societies concerned with geography, the Geographical Association is not included, though its membership is now nearly 650, and it has branches in various parts of this country and in South Africa. But notwithstanding such defects, which can be remedied easily in the next issue, the compilation should continue to be of real assistance as an index to British scientific associations and their work.

A LIST of publications of the Carnegie Institution of Washington, already issued or in the press, has just been received; and it reminds us of the very useful work the institution is doing by the publication of monographs on many scientific subjects of wide and deep interest. About ninety of these memoirs have been published, and most of those containing contributions to natural knowledge have been described in the columns of NATURE. Among the works now in the press, we notice an atlas of the Milky Way, E. E. Barnard; dynamic meteorology and hydrography, V. Bjerknes and J. W. Sandström; the rotation period of the sun, as determined by the motion of the calcium flocculi, G. E. Hale; inheritance in canaries, C. B. Davenport; supplementary investigations of infrared spectra, W. W. Coblentz; and botanical features of North American deserts, D. T. MacDougall. The publications are sold at a nominal price, and a list can be obtained upon application to the Carnegie Institution of Washington, Washington, D.C., U.S.A.

OUR ASTRONOMICAL COLUMN.

RETURN OF ENCKE'S COMET (1908*a*).—A telegram from the Kiel Centralstelle announces that Encke's comet was found by Prof. Wolf on January 2.

Its position at 6h. 14·5m. on that date (Königstuhl M.T.) was R.A. = 23h. 3m. 16s., dec. = 1° 19′ N., and its magnitude was 13·0.

The following is an abstract from the ephemeris given in No. 4222 of the *Astronomische Nachrichten*:—

Ephemeris 0*h.* (*M.T. Berlin.*)

1908	α (app.) h. m.	δ (app.) ° ′	log *r*	log Δ
Jan. 11 ...	23 8·8 ...	+2 21·9 ...	0·2829 ...	0·3461
,, 19 ...	23 17·4 ...	+3 7·8 ...	0·2617 ...	0·3477
,, 27 ...	23 27·1 ...	+4 3·1 ...	0·2385 ...	0·3469
Feb. 4 ...	23 38 1 ...	+5 7·5 ...	0·2130 ...	0·3435

At present the comet is apparently passing through the constellation Pisces towards Aries, and sets nearly due west at about 10 p.m. The calculated time of perihelion passage is April 30, not February 22, as stated in our last issue.

SATURN'S RINGS.—No. 4222 of the *Astronomische Nachrichten* (p. 361, December 18, 1907) contains further notes on the recent appearance of Saturn's rings.

The Rev. T. E. R. Phillips states that on many occasions since the middle of October he has seen the ring clearly, as an extremely fine line of light on each side of the planet, with his 12½-inch Calver equatorial. This line was not always uniformly luminous, but appeared continuous except on November 8, when an interruption on the following side was suspected. He believes the present visibility of the ring to be due to the sunlight passing through the Cassini division and illuminating the edge of the second ring, which is the brightest part of the system.

Dr. Lau gives the results of a number of micrometer observations of the minor axis of the rings, for position-angle, from September 3 to 28, 1907, and shows the differences between the observed and the Nautical Almanac values. The rings were seen on October 2 at 0·2h., but were invisible on October 3 at 23·1h.

THE SPECTRA OF TWO METEORS.—Using a prismatic camera made up of a Voigtländer euryscope, of 50 mm. aperture and 300 mm. focal length, with a 45° crown-glass prism placed before it, M. Blakjo, of the Moscow Observatory, obtained the spectrum of a meteor on May 11, 1904; with another camera an ordinary trail photograph was obtained at the same time. Encouraged by this chance fortune, M. Blakjo directed his cameras towards the Perseid radiant on August 12 of the same year, and was fortunate enough to secure a second meteor spectrum.

In the first case the meteor was of about the first magnitude, and of a yellow colour, and the spectrum consists of fine lines, of which, by an ingenious method of comparison with the hydrogen lines shown in the adjacent stellar spectra, M. Blakjo determined the approximate wave-lengths to the number of thirteen.

The second meteor was equally bright and of a pure green colour; during the second half of its flight it was considerably brighter than at first, and this increase of brightness increased the number of lines shown in the spectrum; the wave-lengths of ten certain and three doubtful lines were determined, and on comparison it was found that the emission spectra of the two meteors are entirely different from each other.

In the spectrum of the first meteor, the calcium lines H and K are the brightest, and are accompanied by the line at λ 4227; magnesium and potassium are also apparently represented. Helium is apparently the outstanding feature of the spectrum of the second meteor, the lines at λλ 3819·8, 3888·8, 3964·9, 4026·3, and 4121·0 being represented. M. Blakjo accounts for the pure green colour of this object by the presence of the thallium line at λ 3775·9 in its spectrum (*Astrophysical Journal*, vol. xxvi., No. 5, p. 341, December, 1907).

THE CONSTANCY OF WAVE-LENGTHS OF SPECTRAL LINES.—The importance of the constancy of wave-length of spectral lines in astronomical, as in terrestrial, spectroscopy leads Prof. Kayser to discuss the question in No. 3, vol. xxvi., of the *Astrophysical Journal*. He points out that Exner and Haschek based some of their recent evidence for variation on differences obtained by students in his laboratory, and states that, in his opinion, these differences were probably due to errors of the standards employed rather than to any real variability of wave-length. Prof. Kayser also adduces evidence, based on the recent work of Dr. Pfund and of Prof. Fabry, in support of his view that "the question of the constancy of the wave-lengths is finally settled."

NEW CHEMICAL LABORATORIES AT ABERYSTWYTH.

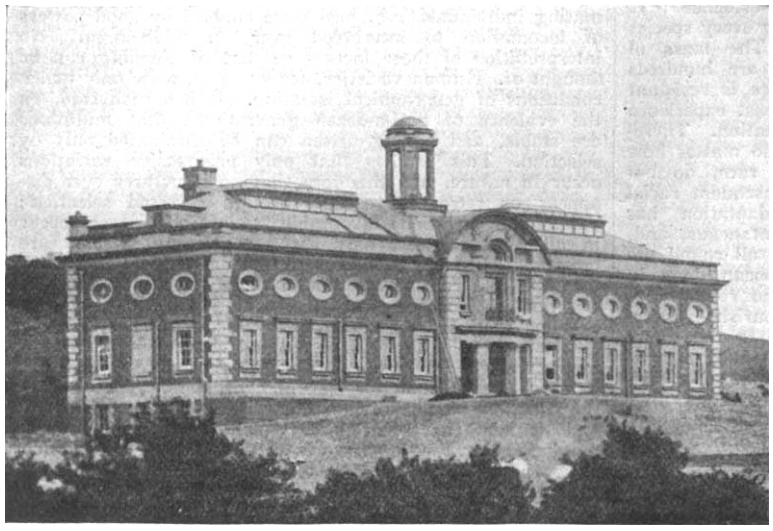
THE Edward Davies chemical laboratories at the University College of Wales, Aberystwyth, which were formally opened on November 1 by Mr. Asquith (see this vol., p. 22), have been erected at a cost of 23,000*l.* by Mr. David Davies, M.P., his mother and sisters, to the memory of the late Mr. Edward Davies, J.P., and have been handed over to the governing body of the University College of Wales. The laboratories are under the direction of Prof. J. J. Sudborough, and have been in use since the opening of the present session on October 2.

The laboratories form a separate block of buildings about half a mile distant from the college, and are erected in local stone with Grinshill dressings. On the first floor are two large laboratories (50 feet by 40 feet), each con-

taining eight double benches (11 feet by 5 feet), so that sixty-four students can work simultaneously; adjoining are balance rooms and a combustion room. The laboratories are well provided with fume cupboards, placed in the window recesses, and ventilated by two main electric "blowers" placed in dormers at the ends of the building. On the same floor is the departmental library (26 feet by 15 feet), which contains complete sets of all the more important English and foreign chemical periodicals, in addition to important general works of reference. The main lecture theatre is situated at the back of the building on the first floor; it is provided with lift-up seats for 130 students, and adjoining it are the preparation room and museum.

On the ground floor are the following rooms:—the physical chemical laboratory, the director's private room and private laboratory, distillation room, two dark rooms, general stores, special stores, porter's room, demonstrator's private laboratory, lecture room with accommodation for fifty students, and two small research rooms. In the basement are a small metallurgical laboratory, extra stores, a fire-proof room, a small dynamo room, and a mechanic's room.

The physical chemical laboratory has a central table 12 feet by 5 feet, with no reagent shelves. Around the walls are slate slabs and wooden tables. The slate tables



The "Edward Davies" Chemical Laboratories, University College of Wales, Aberystwyth.

are provided with several thermostats regulated for different temperatures. The room also contains a fume cupboard for electrolytic work, and a main accumulator board. This board carries the terminals of twenty Tudor cells placed in the adjacent room. The cells are charged from a small motor generator in the basement, and are in groups of one, two, and four. The accumulator board also carries the terminals of eight working positions, four in the physical chemical laboratory and four in one of the large laboratories, and, in addition, three main terminals for the lecture theatre and the motor generator terminals. The terminals are so arranged that any position in the theatre, large laboratory, or physical chemical laboratory can be connected to any group or combination of groups of cells, and also, if necessary, to the motor generator terminals.

The distillation room has no gas connections, but has a long slate slab provided with water, steam, current (220 volts), and waste. It is used for the distillation of large quantities of inflammable liquids, and the source of heat is either steam or electric current. The fire-proof room is furnished with slate slabs and an iron fume cupboard. Experiments necessitating the use of gas during the night are conducted in this room. The gas connections for this room and for the chemical physical laboratory are so arranged that flames may be left burning in these rooms when the main gas supply is shut off for the night. The general heating is by means of hot-water pipes, and the lighting by means of tantalum lamps.

The laboratories are especially arranged to give students a sound training in the various branches of chemical study and are also admirably suited for the carrying out of original investigations. At present about eighty students are working in the laboratories, and of these five are engaged in research work, mainly on the relationship between constitution and the velocity of reaction of carboxylic acids.

SCIENTIFIC WORK OF THE LOCAL GOVERNMENT BOARD.

THE supplement to the thirty-fifth annual report of the Local Government Board, 1905–6, contains the report of the medical officer for 1905–6. The contents of this valuable volume are briefly summarised in the excellent introduction contributed by the principal medical officer, Mr. Power.

An account of the general administrative business of the medical department is given in Appendix A, which includes reports on the outbreaks of enteric fever at Basingstoke and at Lincoln.

Appendix B contains an account of the auxiliary scientific investigations carried out for the Board, of which three are contributed by Dr. Klein, and deal with plague. The first and second of these form a further contribution on the value of a new plague prophylactic prepared from the dried organs of plague-infected animals, as previously detailed by the author, who concludes that it would appear that the injection of rats with efficient material—the raw or the heated filtrate of emulsions of dried plague organs—in appropriate doses has proved protective in as short a period as seven days against subsequent cutaneous inoculation of virulent *B. pestis*, that is, against plague infection administered in the most effective manner. Further, it appears that the protection thus afforded, though inducible so speedily, may be trusted to persist many days, and even weeks. The prophylactic having been proved to protect rats was also tested on monkeys in order to ascertain whether or not there was promise of its application to the human subject proving salutary and justifiable, and 25 milligrams of dry material sufficed to protect against a supra-lethal dose of virulent plague bacilli. As regards the rat, Dr. Klein finds that various species of rat are differently susceptible to the *B. pestis*, the Norway rat apparently being less susceptible than certain other races.

Dr. Gordon reports on the micrococcus of epidemic cerebro-spinal meningitis ("spotted fever"), with special reference to its identification in the upper respiratory passages. The morphological and other characters of the meningococcus are fully described, and its differentiation from other somewhat similar cocci by means of fermentation reactions on various sugars is detailed.

Dr. Sidney Martin has continued his studies on the chemical products of micro-organisms, and reports on the products of the *Bacillus enteritidis sporogenes*. The experiments show that the poisonous products of this organism do not consist of an endo-toxin, but of a soluble chemical and non-protein substance which is formed by the bacillus by its action on proteins. Dr. Wade contributes an exhaustive experimental inquiry on sulphur dioxide as applied in the destruction of rats and in disinfection on shipboard. The conclusion is formulated that a modification of the Clayton apparatus (described in the report) to supply dilute sulphur dioxide will prove the best adapted to practical requirements.

The last paper, by Drs. Andrewes and Gordon, discusses